

SEQUENCE LISTING

<110> MERCK PATENT GMBH
BAKER, Matthew
CARR, Francis J.

<120> T-CELL EPITOPES IN ERYTHROPOIETIN

<130> MER-137

<150> PCT/EP2003/008725

<151> 2003-08-07

<150> EP02017914.9

<151> 2002-08-09

<160> 61

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 166

<212> PRT

<213> Homo sapiens

<400> 1

Ala	Pro	Pro	Arg	Leu	Ile	Cys	Asp	Ser	Arg	Val	Leu	Glu	Arg	Tyr	Leu
1				5					10					15	
Leu	Glu	Ala	Lys	Glu	Ala	Glu	Asn	Ile	Thr	Thr	Gly	Cys	Ala	Glu	His
			20					25					30		
Cys	Ser	Leu	Asn	Glu	Asn	Ile	Thr	Val	Pro	Asp	Thr	Lys	Val	Asn	Phe
		35					40					45			
Tyr	Ala	Trp	Lys	Arg	Met	Glu	Val	Gly	Gln	Gln	Ala	Val	Glu	Val	Trp
	50					55					60				
Gln	Gly	Leu	Ala	Leu	Leu	Ser	Glu	Ala	Val	Leu	Arg	Gly	Gln	Ala	Leu
65					70					75				80	
Leu	Val	Asn	Ser	Ser	Gln	Pro	Trp	Glu	Pro	Leu	Gln	Leu	His	Val	Asp
				85					90					95	
Lys	Ala	Val	Ser	Gly	Leu	Arg	Ser	Leu	Thr	Thr	Leu	Leu	Arg	Ala	Leu
			100					105					110		
Gly	Ala	Gln	Lys	Glu	Ala	Ile	Ser	Pro	Pro	Asp	Ala	Ala	Ser	Ala	Ala
		115					120					125			
Pro	Leu	Arg	Thr	Ile	Thr	Ala	Asp	Thr	Phe	Arg	Lys	Leu	Phe	Arg	Val
	130					135					140				
Tyr	Ser	Asn	Phe	Leu	Arg	Gly	Lys	Leu	Lys	Leu	Tyr	Thr	Gly	Glu	Ala
145					150					155					160
Cys	Arg	Thr	Gly	Asp	Arg										
				165											

<210> 2

<211> 33
<212> PRT
<213> Homo sapiens

<400> 2
Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile
1 5 10 15
Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val
20 25 30
Pro

<210> 3
<211> 33
<212> PRT
<213> Homo sapiens

<400> 3
Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu
1 5 10 15
Gln Leu His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr
20 25 30
Leu

<210> 4
<211> 33
<212> PRT
<213> Homo sapiens

<400> 4
Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser
1 5 10 15
Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg
20 25 30
Thr

<210> 5
<211> 21
<212> PRT
<213> Homo sapiens

<400> 5
Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser
1 5 10 15
Leu Asn Glu Asn Ile
20

<210> 6
<211> 21
<212> PRT
<213> Homo sapiens

<400> 6
Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu
1 5 10 15
Gln Leu His Val Asp
20

<210> 7
<211> 21
<212> PRT
<213> Homo sapiens

<400> 7
Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys
1 5 10 15
Leu Lys Leu Tyr Thr
20

<210> 8
<211> 12
<212> PRT
<213> Homo sapiens

<400> 8
Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala
1 5 10

<210> 9
<211> 15
<212> PRT
<213> Homo sapiens

<400> 9
Lys Val Val Asp Gln Ile Lys Lys Ile Ser Lys Pro Val Gln His
1 5 10 15

<210> 10
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 10

Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr
1 5 10 15

<210> 11

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 11

Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu
1 5 10 15

<210> 12

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 12

Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu
1 5 10 15

<210> 13

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 13

Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn
1 5 10 15

<210> 14

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 14

Glu Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr

1 5 10 15

<210> 15

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 15

Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala
1 5 10 15

<210> 16

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 16

Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys
1 5 10 15

<210> 17

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 17

Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn
1 5 10 15

<210> 18

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 18

Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu Asn Ile
1 5 10 15

<210> 19
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 19
Gly Cys Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro
1 5 10 15

<210> 20
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 20
Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
1 5 10 15

<210> 21
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 21
Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe
1 5 10 15

<210> 22
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 22
Glu Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp
1 5 10 15

<210> 23
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 23
Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met
1 5 10 15

<210> 24
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 24
Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly
1 5 10 15

<210> 25
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 25
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala
1 5 10 15

<210> 26
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 26
Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val
1 5 10 15

<210> 27
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 27
Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly
1 5 10 15

<210> 28
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 28
Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu
1 5 10 15

<210> 29
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 29
Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu
1 5 10 15

<210> 30
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 30
Val Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu
1 5 10 15

<210> 31

<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 31
Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln
1 5 10 15

<210> 32
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 32
Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu
1 5 10 15

<210> 33
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 33
Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser
1 5 10 15

<210> 34
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 34
Ala Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro
1 5 10 15

<210> 35
<211> 15

<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 35
Arg Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro
1 5 10 15

<210> 36
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 36
Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
1 5 10 15

<210> 37
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 37
Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp
1 5 10 15

<210> 38
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Potential epitope sequences

<400> 38
Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val
1 5 10 15

<210> 39
<211> 15
<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 39

Trp	Glu	Pro	Leu	Gln	Leu	His	Val	Asp	Lys	Ala	Val	Ser	Gly	Leu
1				5					10					15

<210> 40

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 40

Leu	Gln	Leu	His	Val	Asp	Lys	Ala	Val	Ser	Gly	Leu	Arg	Ser	Leu
1				5					10					15

<210> 41

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 41

His	Val	Asp	Lys	Ala	Val	Ser	Gly	Leu	Arg	Ser	Leu	Thr	Thr	Leu
1				5					10					15

<210> 42

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 42

Lys	Ala	Val	Ser	Gly	Leu	Arg	Ser	Leu	Thr	Thr	Leu	Leu	Arg	Ala
1				5					10					15

<210> 43

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 43

Ser	Gly	Leu	Arg	Ser	Leu	Thr	Thr	Leu	Leu	Arg	Ala	Leu	Gly	Ala
1				5				10					15	

<210> 44

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 44

Arg	Ser	Leu	Thr	Thr	Leu	Leu	Arg	Ala	Leu	Gly	Ala	Gln	Lys	Glu
1				5				10					15	

<210> 45

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 45

Thr	Thr	Leu	Leu	Arg	Ala	Leu	Gly	Ala	Gln	Lys	Glu	Ala	Ile	Ser
1				5				10					15	

<210> 46

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 46

Leu	Arg	Ala	Leu	Gly	Ala	Gln	Lys	Glu	Ala	Ile	Ser	Pro	Pro	Asp
1				5				10					15	

<210> 47

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 47

Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser
1 5 10 15

<210> 48

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 48

Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro
1 5 10 15

<210> 49

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 49

Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr
1 5 10 15

<210> 50

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 50

Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp
1 5 10 15

<210> 51

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 51

Ala	Ser	Ala	Ala	Pro	Leu	Arg	Thr	Ile	Thr	Ala	Asp	Thr	Phe	Arg
1				5					10					15

<210> 52

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 52

Ala	Pro	Leu	Arg	Thr	Ile	Thr	Ala	Asp	Thr	Phe	Arg	Lys	Leu	Phe
1				5					10					15

<210> 53

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 53

Arg	Thr	Ile	Thr	Ala	Asp	Thr	Phe	Arg	Lys	Leu	Phe	Arg	Val	Tyr
1				5					10					15

<210> 54

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 54

Thr	Ala	Asp	Thr	Phe	Arg	Lys	Leu	Phe	Arg	Val	Tyr	Ser	Asn	Phe
1				5					10					15

<210> 55

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 55

Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly
1 5 10 15

<210> 56

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 56

Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys
1 5 10 15

<210> 57

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 57

Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
1 5 10 15

<210> 58

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 58

Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala
1 5 10 15

<210> 59

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 59

Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr
1 5 10 15

<210> 60

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Potential epitope sequences

<400> 60

Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg
1 5 10 15

<210> 61

<211> 166

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified erythropoietin

<221> VARIANT

<222> 25, 35

<223> Xaa=Ile, Ala, Gly, or Pro
Xaa=Leu, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,
Gln, Arg, Ser, or Thr

<221> VARIANT

<222> 88, 91

<223> Xaa=Trp, Thr, Ala, or Gly
Xaa=Leu, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,
Gln, Arg, Ser, or Thr

<221> VARIANT

<222> 93, 95

<223> Xaa=Leu, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,
Gln, Arg, Ser, or Thr
Xaa=Val, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,
Gln, Arg, Ser, or Thr

<221> VARIANT

<222> 141, 142, 144, 145

<223> Xaa=Ile or Thr
Xaa=Phe, Ala, Gly, or Pro
Xaa=Val or Thr
Xaa=Tyr, Ala, Gly, or Pro

<221> VARIANT

<222> 148, 149

<223> Xaa=Phe, Ala, Gly, or Pro

Xaa=Leu, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,
Gln, Arg, Ser, or Thr

<221> VARIANT

$$\langle 222 \rangle \quad (153) \dots (153)$$

<223> Xaa=Leu, Ala, Asp, Glu, Gly, His, Lys, Asn, Pro,

Gln, Arg, Ser, or Thr

<400> 61

[illegible]